



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/844,412

04/27/2001

Jeffrey L. Tuohino

97CR061/KE

1378

7590

10/18/2004

Rockwell Collins, Inc.
Attention: Kyle Epele M/S 124-323
400 Collins Rd. NE
Cedar Rapids, IA 52498

EXAMINER

ZHENG, EVA Y

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,412

Applicant(s)

TUOHINO, JEFFREY L.

Examiner

Eva Yi Zheng

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/27/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 3-11 and 14-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 7, line 4, "Serial No. 08/963,930, filed on November 4, 1998" should be changed to -- Serial No. 08/963,930, filed on November 4, 1997 --.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dapper et al. (US 5,878,089) in view of Vittorini et al. (Optimizing Indoor GPS Performance).
- a) Regarding claim 1, Dapper et al. disclose a method of enhancing signal tracking in a global positioning system receiver utilizing a multiple segment multiple frequency banked filter, the method comprising: (as shown in Fig. 1)
 - acquiring a continuous time global positioning signal (inherent as RF signal; 2);
 - separating the continuous time global positioning signal into in-phase and quadrature signals I and Q (10);
 - sampling the signals I and Q to provide discrete time signals (18);

generating from the discrete time signals a component in-phase measurement and a component quadrature measurement (output from block 18); and

detecting power in the corresponding composite in-phase measurement and the corresponding composite quadrature measurement (12).

Dapper et al. disclose all of the subjects disclose above except for explicitly pointing out a PDI for sampling the signals.

However, Vittorini et al., in the same field of endeavor, disclose fundamental GPS receiver design choices, such as PDI.

Although Dapper et al. did not specially disclose PDI sampling technique for GPS signal, such limitation is merely a matter of design choice and would have been obvious in the system of Dapper et al. Dapper et al. teach a GPS receiver down converting, sampling and detection coherent signals, while Vittorini et al. teach optimizing GPS performance. The limitation "PDI" do not define a patentably distinct invention over that Dapper et al. since both Dapper et al. and Vittorini et al. are directed to GPS signal detection and better performance. The way to sampling GPS signals present no new or unexpected result. Therefore, PDI is a well-known concept in the GPS system and is a design choice to one of ordinary skill in the art.

b) Regarding claims 2 and 13, Dapper et al. disclose all of the subjects disclose above except for explicitly pointing out sampling the signals I and Q over a PDI of approximately 20 milliseconds to provide discrete time signals.

However, Vittorini et al. in the same field of endeavor, disclose the signals of I and Q over the PDI further comprises sampling the signals I and Q over a PDI of

approximately 20 milliseconds to provide discrete time signals (Pg 2, Receiver Sensitivity).

Although Dapper et al. did not specially disclose PDI sampling technique for GPS signal and signals I and Q over a PDI of approximately 20 milliseconds, such limitations are merely a matter of design choice and would have been obvious in the system of Dapper et al. Dapper et al. teach a GPS receiver down converting, sampling and detection coherent signals, while Vittorini et al. teach optimizing GPS performance. The limitations "PDI and 20 milliseconds" do not define a patentably distinct invention over that Dapper et al. since both Dapper et al. and Vittorini et al. are directed to GPS signal detection and better performance. The way to sampling GPS signals present no new or unexpected result. Therefore, PDI is a well-known concept in the GPS system and is a design choice to one of ordinary skill in the art.

c) Regarding claim 12, Dapper et al. disclose a global positioning system receiver having enhanced signal tracking after signal acquisition, the global positioning system receiver comprising: (as shown in Fig. 1)

signal separation circuitry configured to separate an acquired continuous time global positioning signal into in-phase and quadrature signals I and Q; (10);

signal processing circuitry coupled to the signal separation circuitry and configured to sample the signals I and Q (18);

tracking circuitry coupled to the signal processing circuitry and configured to generate, a composite in-phase measurement and a composite quadrature

measurement by combining component in-phase measurements and component quadrature measurements (20); and

power detecting circuitry configured to detect power corresponding composite in-phase measurement and the corresponding composite quadrature measurement (24).

Dapper et al. disclose all of the subjects disclose above except for explicitly pointing out a PDI for sampling the signals.

However, Vittorini et al., in the same field of endeavor, disclose fundamental GPS receiver design choices, such as PDI.

Although Dapper et al. did not specially disclose PDI sampling technique for GPS signal, such limitation is merely a matter of design choice and would have been obvious in the system of Dapper et al. Dapper et al. teach a GPS receiver down converting, sampling and detection coherent signals, while Vittorini et al. teach optimizing GPS performance. The limitation "PDI" do not define a patentably distinct invention over that Dapper et al. since both Dapper et al. and Vittorini et al. are directed to GPS signal detection and better performance. The way to sampling GPS signals present no new or unexpected result. Therefore, PDI is a well-known concept in the GPS system and is a design choice to one of ordinary skill in the art.

Allowable Subject Matter

4. Claims 3-11 and 14-19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:


(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng
Examiner
Art Unit 2634

October 4, 2004


SHUWANG LIU
PRIMARY EXAMINER

Application/Control Number: 09/844,412

Page 7

Art Unit: 2634